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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,574	07/02/2003	Keith Phillip Laby	157438-0014	7469
1622	7590	10/27/2004	EXAMINER	
IRELL & MANELLA LLP 840 NEWPORT CENTER DRIVE SUITE 400 NEWPORT BEACH, CA 92660			IP, SHIK LUEN PAUL	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 10/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/614,574

Applicant(s)

LABY, KEITH PHILLIP

Examiner

Paul Ip

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/2/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-12, 14-29, and 32-41 are rejected as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. The claims recite a drive roller assembly used for a mobile robot with the only recitation of a drive ball, a transmission roller, and a drive mechanism. The claims fail to recite any elements to conform that the drive roller assembly can be used for a mobile robot or any devices as a drive assembly for a mobile robot as shown in figures 2-4 of the invention.

Claims 13, 30, 31, and 42 are rejected as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. The claims recite activating a drive mechanism within a mobile robot and rotating a transmission roller that can rotate about at least two axes and is in continuous contact with a drive ball to rotate the drive ball and move the mobile robot. The claims omit essential steps of a drive mechanism as how to operate with the transmission roller and the drive ball in the claims in order to drive the mobile robot.

Claims 1-42 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. The omitted structural and the relationship are provided as set forth in the previous paragraphs. See MPEP § 2172.01.

Furthermore, the claims repeatedly recite similar structure in the claims, which the claims are considered as unduly multiplied claims, 37 CFR § 1.75(b). See MPEP 608.01(i).

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-13, and 30-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derby (4,413,693) in view of Pin et al (5,374,879).

With respect to claims 1, 2, 7, 8, 13, 30-33, 37, 38, and 42, the patent to Derby shows in figures 1, 2, 4, 6, and 9-12 a drive ball, transmission rollers, and a drive mechanism coupled to the transmission roller. Whereas, the claims recite a drive roller assembly for a mobile robot with the transmission roller can rotate about at least two axes. However, the patent to Pin et al disclose an omni-directional and holonomic rolling platform for a robot comprising a transmission roller assembly which can rotate about at least two axes as shown in figures 1, 3, 4, and a control system in figure 5. Since Derby shows in figures 1, 2, 4, 6, and 9-12 the roller transmission rollers for driving the ball movement not only selective translational movement, such as forward and rearward, but also selective turning to the left or right, in response to postural shifting by the user. See column 3 lines 13-17. In light of Pin et al, it would have been obvious to one of ordinary skill in the art to provide Derby with the transmission roller for at least two axes movement or omni-directional movement as taught or suggested by Pin et al.

With respect to claims 3 and 9, Derby shows in figures 1, 2, 4, 7, and 9-12 the transmission roller is attached to a bracket. Also see Pin et al figures 1, 3, and 4.

With respect to claims 4, 6, 10, 12, 34, 36, 39, and 41, it is inherent that Derby's bracket requires a groove in order to allow the transmission roller to make contact with the drive ball. Also see Pin et al figures 1, 3, and 4.

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With respect to claims 5, 11, 35, and 40, Derby shows in figures 1, 2, 6 the drive pulley as recited in the claims.

4. Claims 14-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derby (4,413,693) in view of Pin et al (5,374,879) taken with Kanayama (5,073,749 or 4,875,172) or Mattaboni (4,638,445).

With respect to claims 14-29, the claims further recite a camera and a pedestal for a keyboard to be used on a robot. However, the patents to Kanayama and Mattaboni disclose mobile robots comprising a camera and a pedestal for a keyboard. Since the use of a camera and a pedestal for mobile robot is notorious old in the art as shown in the patents to Kanayama and Mattaboni, and Pin et al teach and suggest the roller transmission device used for a mobile robot, it would have been obvious to one of ordinary skill the art to use the roller transmission device of Derby in view of Pin et al for the mobile robot as with a camera and a pedestal for a keyboard as taught or suggested by Kanayama or Mattaboni.

#### *Response to Arguments*

5. Applicant's arguments with respect to claims 1-42 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's argument is not persuasive. Derby discloses in the specification that the drive ball and the transmission roller can drive the mobile chair not only selective translational movement, such as forward and rearward, but also selective turning to the left or right in two dimensional axes. Applicant's attention is directed to Pin et al figures 1, 3, and 4. Pin et al show in the figures the transmission roller structure, which the structure is not limited to use for driving a platform. The recent development of the omni-directional, crab motion, or roller ball type of mobile robot can use the Pin et al transmission roller structure for driving a roller ball as the mobile robot as shown in the DeVault et al patent 5,857,534. Therefore, applicant's argument is not persuasive in that the claims fail to particular define the drive roller mobile robot structure of invention as shown in figures 2-4 of the invention in order to overcome the art rejection.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

*Customer Services Information*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Ip whose telephone number is (571)-272-1941. The examiner can normally be reached on Monday to Friday from 6:30 a.m. to 3:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin, can be reached on (571)-272-1207. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul Ip  
Primary Examiner  
Art Unit 2837